

VARIABLE OPTICAL ATTENUATOR BASED ON ELECTRICALLY SWITCHABLE CHOLESTERIC LIQUID CRYSTAL REFLECTIVE POLARIZERS

ABSTRACT

Variable optical attenuators (VOAs) are provided, based on electrically switchable CLC reflective polarizers. The reflectivity of the described reflective VOAs can theoretically be electrically adjusted between 0% to 100%, and the reflective bandwidth can be easily adjusted. In general, the VOA includes a pair of switchable CLC polarizers and a driver for driving the polarizers. When the electric fields on both polarizers are off, the polarizers serve as two reflective mirrors. When the fields are turned on, the two polarizers are switched into two transparent sheets allowing light to transmit therethrough. Continuously changing the voltages on the two polarizers electrically adjusts the attenuation.